

Remarks/Arguments

The Examiner is thanked for the careful review of this application. Claims 26-49 are pending after entry of the present Request for Reconsideration. Claims 1-25 were previously cancelled. Claims 26-43 have been allowed.

Rejections under 35 U.S.C. § 103:

The Office has rejected claims 44-49 under U.S.C. section 103(a), as being unpatentable over United States Patent 6,207,544 to Nguyen et al. (Nguyen) in view of United States Patent 6,333,271 to Chiu et al. (Chiu) and United States Patent 6,051,504 to Armacost et al. (Armacost) as well as United States Patent 6,277,700 to Yu et al. (Yu) in view of Chiu and Armacost. The Applicants respectfully traverse the Office's rejections and submit that independent claims 44, 48, and 49 are patentable over the cited references, for at least the following reasons.

In the Office Action, the Office has admitted that the combinations of Nguyen, Chiu, and Armacost or Yu, Chiu, and Armacost are different from the claimed invention in that the claimed invention specifies the percentage by volume of the second etchant gas. Notwithstanding the latter deficiency associated with the combinations of references, the Office has interpreted that it would have been obvious to one having ordinary skill in the art to optimize the percentage by volume of the second etchant gas with minimal testing, because modifying a combination of references by routine experimentation to obtain the optimal result is not inventive.

The Applicants respectfully disagree with the Office's interpretation, as routine experimentation with the etchant gas of Armacost would not have lead one having ordinary skill to the claimed second etch gas having the specific percentage by volume. For instance, it is well established that a particular parameter must be recognized as a result-effective variable before a determination can be made that the optimum or workable ranges of the variable might be characterized as routine experimentation. See M.P.E.P. § 2144.05 (Section II.B). It is respectfully submitted that none of the references (specifically Armacost) or the combination of the references provides one having ordinary skill in the art with any indication that the particular percentage by volume of the second etchant gas is needed to obtain an etchant gas that is effective to etch silicon nitride from over a substrate surface. Additionally, the Office's interpretation does not establish or support that the cited prior art recognizes the allegedly optimized variables as being result-effective variables. Consequently, any experimentation with the etchant gas disclosed in Armacost to formulate an etchant gas for etching silicon nitride from over the substrate surface cannot properly be considered routine experimentation.

Furthermore, it is well established that the chemical arts are unpredictable. Armacost, however, provides the generic teaching that the etchant of C₂F₆, CH₂F₂, and O₂ may

be used to etch silicon nitride layer covered by photoresist. The latter generic teaching, however, would not have given one having ordinary skill in the art any reasonable expectation to arrive at the claimed percentage by volume or the specific percentage by volume of the second etchant gas that would successfully etch a thin spacer layer from over the substrate surface. Rather, Armacost specifies that the etchant of C_2F_6 , CH_2F_2 , and O_2 is used to etch silicon nitride layer covered by photoresist material and, not to remove the thin nitride layer from over the substrate surface.


Therefore, it is respectfully submitted that independent claims 44, 48, and 49 are patentable under 35 U.S.C. § 103(a) over any combination of the cited prior art. In a like manner, dependent claims 45-47 which incorporate each and every element of independent claim 44 are patentable under 35 U.S.C. § 103(a) over any combination of the cited prior art for at least the same reasons discussed above with respect to independent claim 44.

Indication of Allowability:

The Applicants acknowledge the Allowability of subject matter in claims 26-43.

In view of the foregoing, the Applicants respectfully submit that all of the pending claims are in condition for allowance. Accordingly, a Notice of Allowance is respectfully requested. If the Examiner has any questions concerning the present Request for Reconsideration, the Examiner is kindly requested to contact the undersigned at (408) 774-6913. If any additional fees are due in connection with filing this Request for Reconsideration, the Commissioner is also authorized to charge Deposit Account No. 50-0805 (Order No. LAM2P295). A duplicate copy of the transmittal is enclosed for this purpose.

Respectfully submitted,
MARTINE PENILLA & GENCARELLA, L.L.P.


Fariba Yadegar-Bandari, Esq.
Reg. No. 53,805

MARTINE PENILLA & GENCARELLA, LLP
710 Lakeway Drive, Suite 200
Sunnyvale, California 94085
Telephone: (408) 774-6913
Facsimile: (408) 749-6901
Customer Number 25920